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PALEOPRODUCTIVITY OF PUYEHUE LAKE (SOUTHERN CHILE) DURING THE LAST MILLENNIUM: CLIMATIC SIGNIFICANCE

S. Bertrand (1), F. Charlet (2), R. Urrutia (3), C. Espinoza (3), B. Charlier (4), V. Renson (1), M. De Batist (2), N. Fagel (1)

(1) Clays and Paleoclimate Research Unit, University of Liège, Belgium, (2) RCMG, University of Ghent, Belgium, (3) Centro EULA, University of Concepcion, Chile, (4) Endogenous Petrology and Geochemistry Research Unit, University of Liège, Belgium (Contact: S.Bertrand@ulg.ac.be)

Southern Chile is a key site for the understanding of past climatic variations since it is influenced by the El Nino Southern Oscillation (ENSO). We investigated high resolution climate changes during the last millennium by a multi-proxy analyse of short cores (60 cm long) collected in Puyehue lake (40°S): magnetic susceptibility, grain-size, mineralogy, density, gamma-density, LOI, biogenic silica content and bulk XRF geochemistry. According to age-depth model (210Pb, 137Cs and varve counting - Boës et al., this session), the cores cover the last 600 yr. The sediment is characterized by volcanic minerals and a high diatom content, due to the important lacustrine silica supply characteristic of volcanic environments. Moreover, the active volcanism of the Chilean Lake District is responsible of a high number of tephra deposits. Our main aim is to quantify biogenic particles fluxes throughout the last millennium by Na2CO3 dissolution and by normative calculation based on bulk XRF analyses. The result shows that volcanic eruptions do not influence the biogenic productivity of the lake. From 1400 to 1880 yr. AD, paleoproductivity shows a global trend from low to high biogenic production. Important paleoproductivity changes are observed over the last 120 yr. Results are compared with historical data and discussed in terms of climate changes and/or anthropic influence.